

[Handwritten signature]



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,534	04/25/2001	William Roberts	0717.2010-000	7411
21005	7590	01/05/2004	EXAMINER	
HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			AKKAPEDDI, PRASAD R	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 01/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AM

Office Action Summary	Application No. 09/843,534	Applicant(s) ROBERTS ET AL.	
	Examiner Prasad R Akkapeddi	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 67-106 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 67-106 is/are rejected.
- 7) ☒ Claim(s) 67,84-87 and 104-106 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 09282001 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-55 and 60-65 in Paper No. 09/30/2003 is acknowledged, which were cancelled subsequently on 11/19/2003 and replaced by new claims 67-106. Hence, claims 67-106 are included in this examination.

Drawings

2. The drawings filed on 08/23/2001 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

Claim Objections

3. Claims 67, 84-87 and 104-106 are objected to because of the following informalities: These claims recite the limitation 'viewer's depth of focus'. While the depth of focus is well known in the optical field, but it does depend upon the particular lens that is used. A viewer's depth of focus is subjective to a particular viewer and is specific to the focal length of a particular viewer's eye, hence the recitation is indefinite. Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 67, 69-70, 72-76, 79-82, 84-87, 89-90, 92-96, 99-102 and 104-106 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamada et al. (Yamada) (U.S. Patent No. 5,508,834).

As to claims 67, 84-86: Yamada discloses a liquid crystal display device having polarizers and microlens array attached to transparent cover members having transparent cover members (6,7) (housing), a liquid crystal panel (5), a liquid crystal display having an image plane. A first side and a second side (Fig. 7), a first polarizer (8) disposed relative to the first side of the display and is mechanically spaced by the housing (transparent cover plate, 6) by a distance such that the first polarizer (8) defects (foreign matter, dust or fluff, col. 4, line 18) are out of depth of focus of the lens system (col. 4, lines 1-24).

Yamada also discloses a second polarizer (9) disposed relative to the second side of the display and is mechanically spaced by the housing (transparent cover plate, 7) by a distance such that the second polarizer (9) defects (foreign matter, dust or fluff, col. 4, line 18) are out of depth of focus of the lens system (col. 4, lines 1-24).

As to 87 and 104-106: Yamada also discloses mounting and assembly of the various elements such as the polarizers (col. 7, lines 22-27) and the assembly operation for the display, including the lens assembly, transparent

cover members for forming a unitary support structure (col. 8, lines 28-31) (housing), providing a first and second polarizers (8,9) and disposed relative to the first and second sides of the display and is mechanically spaced by the housing (transparent cover plates, 67) by a distance such that the first and second polarizers (8,9) defects (foreign matter, dust or fluff, col. 4, line 18) are out of depth of focus of the lens system (col. 4, lines 1-24).

As to claims 69-70 and 89-90: Yamada discloses a second polarizer (9) disposed that is mechanically spaced by the housing (transparent cover plate, 7) by a distance such that the second polarizer (9) defects (foreign matter, dust or fluff, col. 4, line 18) are out of depth of focus of the lens system (col. 4, lines 1-24).

As to claims 72-76 and 92-96: Yamada discloses the mechanical spacing of the first and second polarizers (8,9) from the image plane with the housing (6,7), mounting with receptacles (62, 72) (Fig. 8), plurality of housing elements including color filters (Fig. 8) and in a backlight (208) to provide the illumination light (col. 4, lines 62-63).

As to claims 79-82 and 99-102: Yamada discloses the display (5) has a first surface and a second surface (22,33), first polarizer (8) and the second polarizer (9) located at a first and second distances from the respective surfaces (Fig. 7). Yamada also discloses a lens and the first polarizer substantially parallel to the display (Fig. 7). In Fig. 6, Yamada discloses a variation where the

first polarizer (8) is located between the display and the transparent cover (6) that includes the lens as shown in Fig. 7.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 68, 71, 88 and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada.

Yamada discloses a display system with a first polarizer and a second polarizer having defects and an arrangement where these polarizers are placed at a distance that is out of the depth of focus of a lens system.

However, Yamada does not disclose the size of the defects.

Since a specific lens design is not provided, the defect size in the polarizers is not critical to the operation of the display system as recited in claims 67 and 87. Besides, the polarizers are normally made out of either organic or inorganic polymer materials using either an extrusion or chemical processes or other processes. Depending upon the specific process used, they are subjective to many defects of varying sizes. Hence, one can normally expect defects varying from 10 micrometers to greater than 10 micrometers.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the defect size having greater than 10 micrometers due to the non critical nature of these defects as explained above.

7. Claims 77 and 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Nosker (U.S.Patent No. 4,660,936).

Yamada does not disclose the use of diffusers.

Nosker in disclosing a display with a light source (12a) and a means for diffusing light discloses two stacked (front and back) diffusers 16x and 16y.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the two diffuser configuration as disclosed by Nosker to the display of Yamada to obtain adequate diffusion (col. 2, line 50).

8. Claims 78,98, 83 and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada and Nosker as applied to claims 77 and 97 and further in view of Mori (U.S.Patent No. 6,288,700).

As to claims 78, 98, 83 and 103: Yamada does not disclose that the backlight consists of an LED or the size of the display.

Mori in disclosing a light emitting flat panel device used as a backlight for mono-color or multi-color image displays, discloses LED sources (4R,4G,4B) and also discloses that displays of any size from small to large can be realized (col. 2,

Art Unit: 2871

line 5). Hence the display size having a diagonal of less than one inch as recited in claims 83 and 103 would have been obvious.

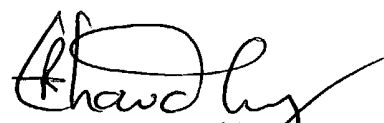
Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the LED sources as disclosed by Mori to the display of Yamada and Nosker to obtain very thin and high brightness devices with low power consumption and having varying sizes and low manufacturing costs and ease of manufacturing (col. 2, lines 1-7).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 703-305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

Prasad R Akkapeddi, Ph.D
Examiner
Art Unit 2871


F. Chowdhury
Primary Examiner